



Reversal Surgery in Regretful Male-to-Female Transsexuals After Sex Reassignment Surgery

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ABSTRACT

Introduction: Sex reassignment surgery (SRS) has proved an effective intervention for patients with gender identity disorder. However, misdiagnosed patients sometimes regret their decision and request reversal surgery. This review is based on our experience with seven patients who regretted their decision to undergo male-to-female SRS.

Aims: To analyze retrospectively seven patients who underwent reversal surgery after regretting their decision to undergo male-to-female SRS elsewhere.

Methods: From November 2010 through November 2014, seven men 33 to 53 years old with previous male-to-female SRS underwent reversal phalloplasty. Preoperatively, they were examined by three independent psychiatrists. Surgery included three steps: removal of female genitalia with scrotoplasty and urethral lengthening, total phalloplasty with microvascular transfer of a musculocutaneous latissimus dorsi flap, and neophallus urethroplasty with penile prosthesis implantation.

Main Outcome Measures: Self-reported esthetic and psychosexual status after reversion surgery and International Index of Erectile Function scores for sexual health after phalloplasty and penile prosthesis implantation.

Results: Follow-up was 13 to 61 months (mean = 31 months). Good postoperative results were achieved in all patients. In four patients, all surgical steps were completed; two patients are currently waiting for penile implants; and one patient decided against the penile prosthesis. Complications were related to urethral lengthening: two fistulas and one stricture were observed. All complications were repaired by minor revision. According to patients' self-reports, all patients were pleased with the esthetic appearance of their genitalia and with their significantly improved psychological status.

Conclusion: Reversal surgery in regretful male-to-female transsexuals after SRS represents a complex, multistage procedure with satisfactory outcomes. Further insight into the characteristics of persons who regret their decision postoperatively would facilitate better future selection of applicants eligible for SRS.

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Key Words: Male-to-Female Transsexuals; Sex Reassignment Surgery; Regret; Phalloplasty; Outcomes

INTRODUCTION

According to the Standards of Care of the World Professional Association of Transgender Health (WPATH),¹ treatment of transsexual persons consists of hormonal therapy and sex reassignment surgery (SRS). Two recommendations from experienced mental health professionals are required to ensure a high probability of subjectively satisfying outcomes. In male-to-female transsexuality, SRS involves the creation of a neovagina and

reconstruction of a sensate neoclitoris from the glans penis lined with its neurovascular bundle. Surgical techniques should be classified by the type of flap or graft that will be used for vaginal reconstruction and include penile and penoscrotal skin grafts, pedicled penile and penoscrotal flaps, free skin grafts, bladder mucosa, or intestinal segments.^{2–4} The esthetic, sensory, and functional results of vaginoplasty vary greatly. In general, most researchers have reported their patients are extremely satisfied overall with their surgical outcomes, with a low rate of complications.^{5–7}

Despite the early or late surgical complications that can usually be solved successfully, regret and suicide after male-to-female surgery should be considered the worst conceivable outcome. Different factors are responsible for regret, including psychosocial adjustment, presence of psychopathology, dissatisfaction with

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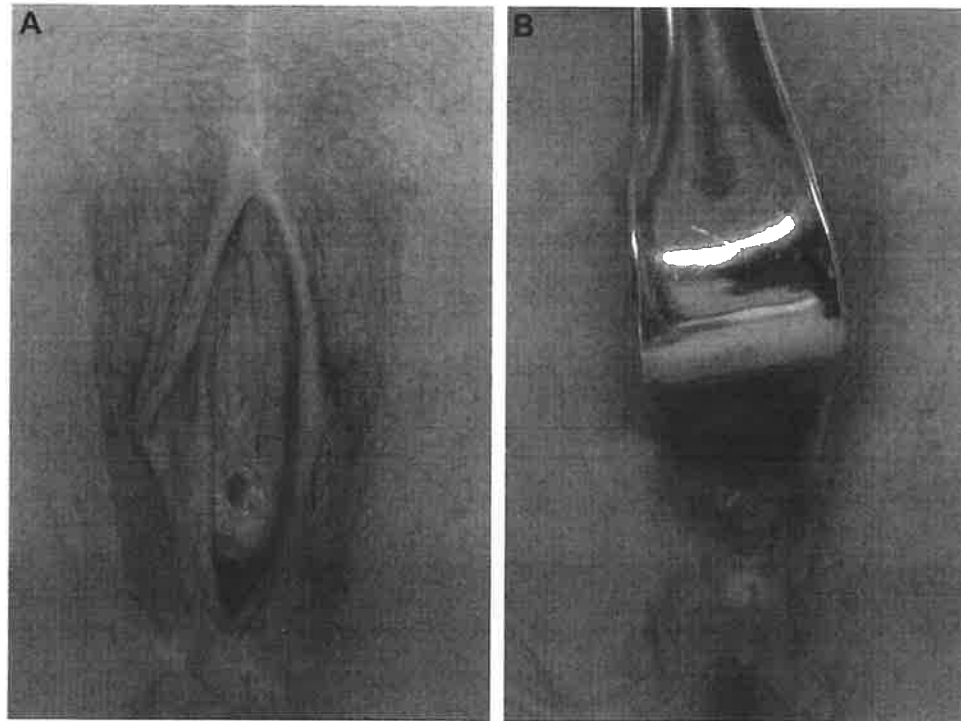


Figure 1. Panels A and B shows the appearance of female genitalia after sex reassignment surgery in a regretful male-to-female transsexual. Figure 1 is available in color online at www.jsm.jsexmed.org.

esthetic and functional results after surgery, the existence and quality of a partner, and other interpersonal relationships. Some researchers have classified the level of regret as three categories: (i) definite regret—the patient persistently regrets surgery and has applied for transition to the natal sex; (ii) some regret—the patient indirectly expresses regret and signs of ambivalence about transsexual surgery; and (iii) no regret. Dissatisfaction and regret after transsexual surgery have been associated with several factors: age older than 30 years at first surgery, personality disorders, social instability, secondary transsexualism, heterosexual sexual orientation, dissatisfaction with surgical results, and poor support from the partner or family.⁸⁻¹⁰

Although many studies have reported psychiatric and psychological problems after hormonal and/or surgical treatment of male-to-female transsexuals, only some have reported on regret. It is not surprising that most previous reports on regret after SRS have been based on a small number of cases that were treated non-surgically.

In the present study, we reviewed seven male-to-female transsexuals who requested reversal genital surgery because of regret after SRS. We hypothesized that it would be very important to delineate the requests for reversal surgery and surgical procedures used in patients' management and to evaluate their postoperative outcomes.

AIMS

The aims of this study were to analyze retrospectively seven patients who underwent reversal surgery in our Belgrade Center

for Transgender Surgery from regret after male-to-female SRS elsewhere.

METHODS

We retrospectively analyzed seven patients 33 to 53 years old (mean = 42 years) treated from November 2010 through November 2014 who regretted undergoing male-to-female SRS (Figure 1). All patients had been examined by at least two mental health professionals and they had undergone SRS elsewhere. They were admitted to our center 11 months to 12 years after the regretted surgery. Of the seven patients, four (57%) underwent free penoscrotal skin vaginoplasty and three (43%) underwent penile inversion vaginoplasty. All patients were interviewed about their reasons for the new surgical transition and expectations from the treatment. Also, they were requested to supply letters of recommendation from three independent experienced mental health professionals. Surgery included three steps: (i) removal of the neovagina with scrotoplasty and urethral lengthening; (ii) total phalloplasty with microvascular transfer of the musculocutaneous latissimus dorsi flap; and (iii) and neophallus urethroplasty with penile prosthesis implantation. Before phalloplasty, the non-dominant donor site was prepared by a professional massage to improve skin elasticity and skin closure after harvesting the latissimus dorsi flap for at least 3 months before surgery.

The neovagina was completely removed from the space between the rectum and bladder, together with the urethra, except for the part of anterior vaginal wall close to the urethral

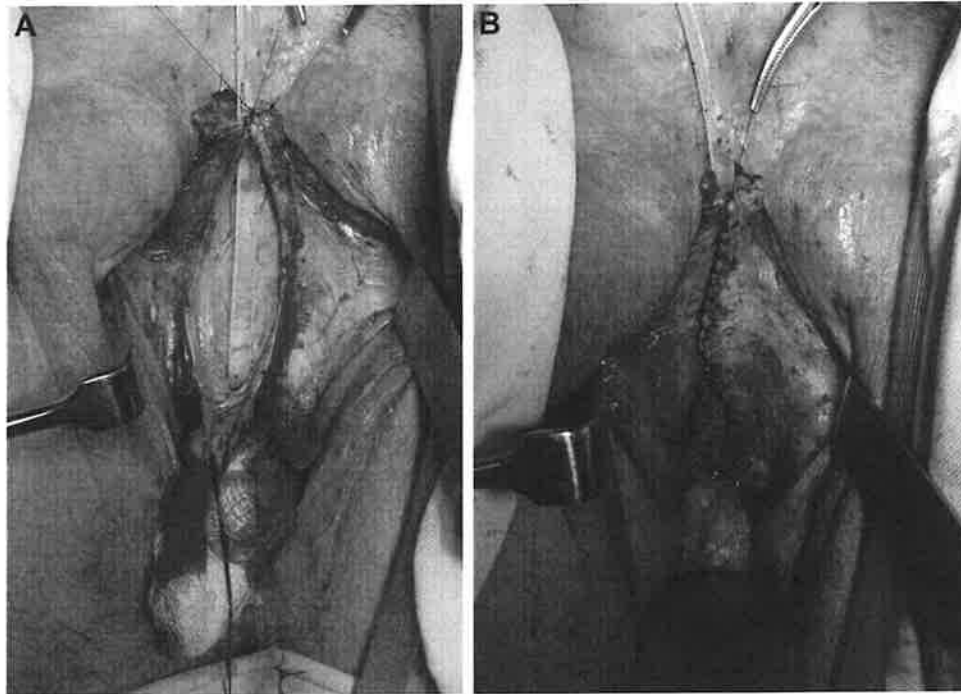


Figure 2. Panels A and B show removal of the vagina and closure of the perineum. All available hairless genital skin is used for bulbar urethroplasty. Figure 2 is available in color online at www.jsm.jsexmed.org.

orifice, which was used for reconstruction of the bulbar urethra (Figure 2). This flap was joined with all available vascularized hairless tissue of the vulval-clitoral complex to lengthen the neourethra to the maximum extent, creating its pars fixa. In this way, the new urethral opening was usually placed at the mons pubis region, minimizing requests for urethral reconstruction during phalloplasty. The reconstructed urethra was covered with fine supportive tissue of the labia and neoclitoris, preventing postoperative fistula formation. The neurovascular bundle of the neoclitoris was dissected and mobilized to enable transposition of the neoclitoris and its later incorporation into the neophallus. The vaginal space was closed and the perineum was fashioned to resemble the male perineum. The two labia majora were joined in the midline over the neourethra, creating a one-sac scrotum. Silicone testicular prostheses were inserted into the labia majora, completing the scrotoplasty.

Phalloplasty began with harvesting of the musculocutaneous latissimus dorsi flap from the patients' non-dominant side (Figure 3). The patient was placed in the lateral position (the upper torso was placed in a full lateral position at 90° and the pelvis at 30°) to provide access to the groin. The musculocutaneous latissimus dorsi flap consisted of two parts: a rectangular part for the neophallus shaft and a circular component for glans reconstruction. Flap dissection started with an incision of the anterior skin margin down to the deep fascia. The plane was developed between the latissimus dorsi and serratus anterior muscles using sharp and blunt dissection. The flap was divided inferiorly and medially, cauterizing the large posterior perforators of the intercostal vessels, and then lifted to expose the

neurovascular pedicle. The pedicle, surrounded by fatty tissue, was identified and dissected proximally up to the axillary vessels. The flap was elevated completely, except for the neurovascular bundle, which was not transected until the recipient vessels and nerve had been prepared for microanastomosis (Figure 4). The latissimus muscle was fixed to the edges of the skin at several points to prevent layer separation during further dissection. The flap was tubularized to create the neophallus while still perfusing on its vascular pedicle. Thus, the completely constructed neophallus was detached from the axillar region after clamping and dividing the subscapular artery, vein, and thoracodorsal nerve at their origins to achieve maximal pedicle length. The donor site was approximated and closed directly after adjacent undermining of wound edges, if possible. Otherwise, if tension was strong enough to compromise healing and lead to donor site necrosis, then a split-thickness skin graft was used.

Dissection of the recipient area was performed with dissection of the femoral artery, saphenous vein, and ilioinguinal nerve. A "Y" incision was made on the mons pubis and a wide tunnel was created between the incisions to receive the pedicle. The neophallus was transferred to the pelvic region and a microsurgical vascular anastomosis was performed immediately. The neophallus base was fixed to the skin at the recipient site. The stabilizing recipient skin site was further approximated and closed.

One of two penile prosthesis types, inflatable or semirigid, was used after total phalloplasty (Figure 5). A transverse incision was made below the pubis, just above the base of the neophallus, dorsally. Hegar dilators were used to create the space for insertion of the prosthesis. Cylinders of the inflatable prosthesis were



Figure 3. A latissimus dorsi flap is tubularized, creating a neophallus with a neurovascular pedicle. Figure 3 is available in color online at www.jsm.jsexmed.org.

inserted into the neophallus, and the pump was placed into the scrotum using a small incision above the scrotum. Additional fixation of the cylinder base to the periosteum of the inferior pubic rami was performed to enable better stability of the implants and prevent cylinder protrusion through the new glans. Insertion of the semirigid implant was performed using the same principles.

Neophallus urethral reconstruction was based on a two-stage procedure. The first stage included the creation of the new “urethral plate” using buccal mucosa grafts (Figure 6). A midline incision was made on the ventral side of the neophallus. Skin and subcutaneous tissue were mobilized laterally, creating a space for buccal mucosa grafts. Grafts of adequate size were harvested from the cheek and placed into the prepared space. Additional quilting was performed for better survival of the grafts. The second stage was performed 3 months later, when the urethral plate had



Figure 4. A neophallus is fixed at the proper position. Microvascular anastomoses between neophallus vessels and recipient vessels are performed. Figure 4 is available in color online at www.jsm.jsexmed.org.

matured enough to be supple and thus more easily mobilized for tubular construction. The newly created urethral plate was dissected and tubularized into the new urethra (Figure 7). Surrounding tissue was used to create a second layer covering and supporting the neophallus urethra. If necessary, additional buccal mucosa grafts were harvested for urethral plate augmentation and easier tubular construction.

Postoperatively, broad-spectrum antibiotics were used to prevent infection after each stage. In the stage of phalloplasty, a special dressing and fixation of the neophallus in an elevated position were used to prevent pedicle kinking. Urethral reconstruction was always followed by suprapubic urine derivation for a period of 3 weeks to allow satisfactory healing of the neourethra. Dilatation of the neophallus urethra is recommended for the first 6 months after surgery. Special care after penile prosthesis implantation included broad-spectrum antibiotics for 7 days to prevent infection and possible rejection.

MAIN OUTCOME MEASURES

Success was defined by the achievement of a functional phallus without urethral complications and an esthetically acceptable male



Figure 5. The second stage includes insertion of the penile prosthesis, scrotoplasty with testicular implants, glans plasty, and further urethral lengthening with buccal mucosa grafts. Figure 5 is available in color online at www.jsm.jsexmed.org.

genital appearance. The first postoperative follow-up visit was at 6 weeks. Then, the patients were followed up every 3 months for 1 year. The patients were interviewed for quality of sexual life and satisfaction using the International Index of Erectile Function (IIEF) questionnaire. All five IIEF-15 domains were considered, including erectile function, sexual desire, orgasmic function, intercourse satisfaction, and overall satisfaction. No statistical analysis was performed because of the small sample.

RESULTS

Follow-up was 13 to 61 months (mean = 31 months). Good postoperative results were achieved in all patients (Table 1). The neophallus was 15 cm (range = 12–21 cm) in length and 13 cm (range = 12–15 cm) in circumference. In four patients, all surgical steps were completed. Inflatable and malleable prostheses

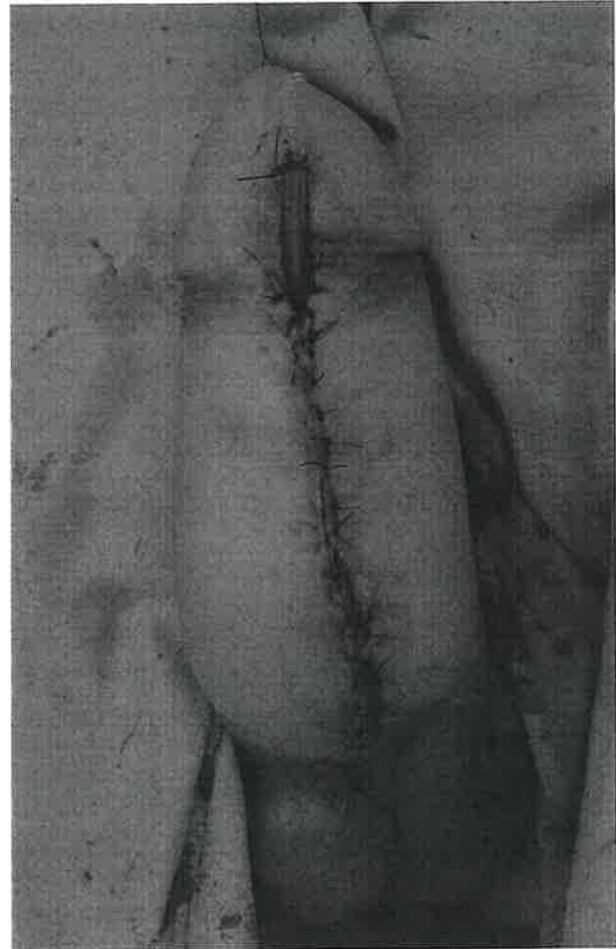


Figure 6. A new urethral plate, created with buccal mucosa grafts, is tubularized creating a neophallus urethra. Figure 6 is available in color online at www.jsm.jsexmed.org.

were implanted in one and three patients, respectively. Two patients are currently waiting for penile implants, and the remaining patient decided against the penile prosthesis.

All patients were evaluated by a psychologist or a psychiatrist and they reported being very satisfied with their surgery. According to patients' self-reports, most were pleased with the esthetic appearance of their genitalia (5 = completely satisfied, 2 = somewhat satisfied). Based on IIEF scores, all patients reported good sexual desire, orgasmic function, and overall satisfaction. Of four patients with penile implants, all reported satisfactory erectile function with adequate intercourse.

Total length of the reconstructed urethra ranged from 14.1 to 22.7 cm (mean = 19.8 cm). All patients reported voiding while standing. Two urethral fistulas and one stricture were observed and repaired by minor revision.

DISCUSSION

SRS in male-to-female transsexuals has been well known for more than 80 years. Previous results from different centers

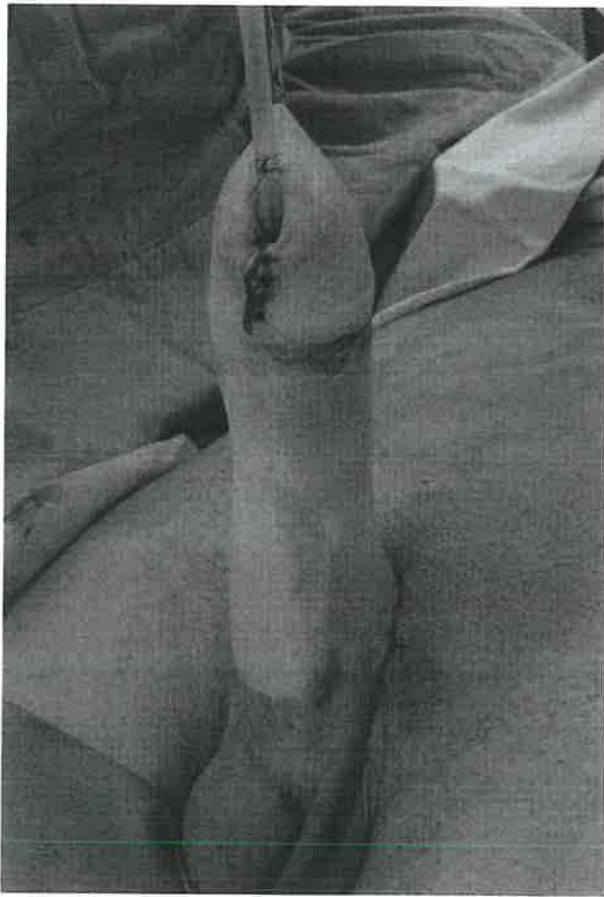


Figure 7. Appearance after reconstruction of the urethra. Figure 7 is available in color online at www.jsm.jsexmed.org.

around the world have confirmed that, in general, most treated transsexuals are satisfied with the surgical results of their newly formed genitalia.^{2-5,11,12} In addition to surgical complications, which can always be successfully resolved, regret presents one of the worst conceivable outcomes. Several factors have been described as a potential risk for regret after male-to-female surgery. Lindemalm et al¹³ defined three categories with different levels of regret: patients with “definite” regret who request reversal surgery, patients with “some” regret who indirectly express regret and ambivalence about SRS, and patients “without” regret. Several factors have been associated with dissatisfaction and regret, such as age older than 30 years at first surgery, personality disorders, social instability, secondary transsexualism, heterosexual sexual orientation, dissatisfaction with surgical results, and poor support from the partner or family.⁸⁻¹⁰ Despite the many studies reporting psychiatric and psychological problems after hormonal and/or surgical treatment of male-to-female transsexuals, only some have reported on regret and those were usually based on a small number of cases that were treated non-surgically.

In the past few years, we evaluated and treated seven regretful male-to-female transsexuals who underwent SRS. All patients were older than 30 years. Transitions that they had undergone

were characterized by the absence of “real-life experience” before surgery, absence or inappropriate hormonal treatment, and letters of recommendation that were written by non-experienced professionals. Data about evaluation by psychiatrists before primary transition were missing. None of the seven regretful patients documented their letters of recommendation. Nevertheless, primary psychiatrists should be informed about these regrets and be aware of primary indications. The main factor contributing to regret, in our experience, is related to the absence of pretreatment assessment, because the literature has shown that psychiatric and psychological issues (unstable personality, strong sexual motivation, comorbidity-personality disorders, or underlying psychopathology-borderline or personality disorders)^{14,15} are among the most significant factors contributing to regret. Motivation for SRS in our patients was not aimed at achieving sexual and gender congruence (eg, sexual motivation, identity diffusion, emotional and behavioral instability, or establishment of a relationship). Before the primary transition, they did not fulfill the complete diagnostic criteria for a gender identity disorder diagnosis (early or late onset) and criteria for personality disorder (eg, borderline). Their hormonal and surgical transitions were characterized by the absence of relief, satisfaction, or decreased anatomic dysphoria and acceptance of body changes or the absence of real-life experience. It was mandatory that three independent well-known WPATH psychiatrists should confirm the reasons for reversal surgery in our regretful patients.

From personal experience in phalloplasty surgery during the past two decades, most of our transmen undergo musculocutaneous latissimus dorsi flap phalloplasty. The main advantage of this flap is its good surface area, yielding an excellent penile size, which is always sufficient to allow staged urethroplasty and insertion of a penile prosthesis. Moreover, a neophallus can be constructed to the size desired by the patient. It is the reason we recommended this same type of flap for the regretful patients. Interestingly, none of the patients opted for metoidioplasty as a method of phalloplasty. Transitional surgery included three different steps for total phalloplasty using the latissimus dorsi flap that was previously described.¹⁶ Good results were obtained in most patients in all surgical aspects, appearance and size of the neophallus, voiding function, and erectile function with the penile implants. However, there are disadvantages, including lack of tactile sensation of the neophallus and urethral complications that require surgical revision. Although an anastomosis between the thoracodorsal nerve and the ilioinguinal nerve was performed as a standard part of the phalloplasty, only two patients reported tactile sensation of the neophallus, confirming one of the main disadvantages of this procedure. This issue remains problematic owing to poor sensitivity of the neophallus, with most sensation restricted to the clitoris (with a preserved sensitivity) incorporated at the base of the neophallus.

Urethral fistulas and strictures are the main problems after total phalloplasty. Reasons can be insufficient vascular supply of the local flaps, inappropriate width of the neourethra causing increased pressure on the bulbar part of the urethra and

Table 1. Patients' profiles and outcomes

Patient number	Age (y)	Period after SRS	Type of phalloplasty/penile prosthesis	Follow-up (mo)	Steps, n	Complications	Satisfaction (self-report)
1	53	10 y	MLD/malleable	61	3	None	Completely satisfied
2	36	11 mo	MLD/next step	42	2	None	Completely satisfied
3	42	8 y	MLD/next step	26	3	Urethral fistula	Somewhat satisfied
4	46	12 y	MLD/without	17	3	None	Completely satisfied
5	39	6 y	MLD/malleable	13	2	Urethral fistula	Completely satisfied
6	33	4 y	MLD/inflatable	31	4	Urethral stricture	Somewhat satisfied
7	47	5 y	MLD/malleable	33	3	None	Completely satisfied

MLD = musculocutaneous latissimus dorsi flap; SRS = sex reassignment surgery.

anastomotic sites, infection, and external pressure to the neourethra caused by testicular prostheses. The development of fistulas can be prevented by covering the anastomosis with an additional layer of subcutaneous tissue. In some patients with a urethral fistula, leaking resolves spontaneously with no need for surgical repair. Urethral fistulas that require surgical intervention are repaired by simple excision of the fistula and covering the excision site with available local vascularized flaps. Most strictures are located at the site of anastomosis between the native urethra and neourethra. Their repair can include anastomotic or buccal mucosa graft urethroplasty. Otherwise, strictures located in the neophallus urethra can be repaired by staged buccal mucosa graft urethroplasty.

In four patients, the penile prosthesis was implanted using a standard dorsal approach. Our initial concerns about this procedure included the possibility of hematoma, partial necrosis of the neophallus, or prosthesis rejection, but none of these occurred during the follow-up period.

Sexual function is an important element of general health, but this is often inadequately explained by health care professionals dealing with transsexual individuals. However, the current literature on postoperative sexual functioning is limited, especially in regretful transsexuals.¹⁷ There are only studies with small samples focused on one topic of sexual health in transsexual men (mainly orgasmic attributes).^{18,19} In our study, we used the IIEF to obtain data about sexual life and satisfaction after reversion surgery. After analyzing the surgical outcome, all our patients were very satisfied and did not regret their decision to undergo this type of surgery. A strong motivation and a good relationship with the partner play a crucial role in achieving a successful sexual life.

Although we reported on one of the largest series of regretful patients, a limitation of our study is the lack of statistical analysis owing to the small sample. It is completely true that our group of regretful patients could not be adequately evaluated by the IIEF. However, we used parts of this questionnaire to estimate some reversal functions of genetic men. It would be good to compare our findings with those before a mistaken transition, but this was not possible in our series. In addition, it is very important to accept that every regretful case represents a major clinical and ethical problem. We believe that the need for reversal surgery in

regretful patients should be determined individually, considering exact preoperative evaluation based on WPATH standards of care and patients' expectations from this multistage surgical protocol and possible complications.

CONCLUSIONS

The vast majority of properly diagnosed transsexual patients are satisfied with their decision to undergo SRS, with only a few coming to regret it. Reversal surgery represents a complex and multistage procedure and it is indicated only after a new cycle of thorough preoperative psychiatric and endocrinologic treatments. Clinicians should be aware that not all persons with gender identity disorders need or want all elements of hormonal or surgical therapy. It should be an argument for a strict interpretation of the standards of care in terms of evaluating the patient's mental health, apart from the evaluation of the gender identity disorder, and the patient's subsequent need for surgical treatment.

We believe that our study will contribute to increasing experience, which in the future will decrease the number of bad choices for SRS and the number of regretful cases.

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